

Minnesota Well Management News



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Minnesota Well Management News

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Minnesota Department of Health's Website Addresses Have Changed

We recently made some changes to our website to better serve our visitors. You will notice that all of the Well Management Section webpages have different Uniform Resource Locators (URLs). We recommend you update your bookmarks and links. Two **new** URLs for commonly used webpages at our site are:

- [Wells and Boring – Well Management Program](http://www.health.state.mn.us/wells) (www.health.state.mn.us/wells)
- [Minnesota Well Index \(MWI\)](http://www.health.state.mn.us/mwi) (www.health.state.mn.us/mwi)

One of Minnesota's Oldest Wells is Discovered by Accident

In October 2016, the Minnesota Department of Health (MDH) was contacted by an administrator at the Liberty Plaza affordable housing complex in the Cathedral Hill neighborhood of St. Paul, Minnesota, regarding a large hole that had opened up on the property near a playground. The administrator was concerned that the hole might be an unsealed well, and that children could fall into it. The property has over 170 housing units and over 200 children live there with their families. A contractor hired to pressure wash the buildings had driven a truck, towing an air compressor behind it, around an apartment building into a green area near the playground. All of a sudden, one of the tires of the air compressor sank into the ground and became stuck. After jacking up the air compressor and placing boards across the opening so that the air compressor could be pulled away, a large hole in the ground was visible.



Location of old hand dug water-supply well discovered adjacent to apartments and playground at the Liberty Plaza affordable housing complex, St. Paul, Minnesota.

INSIDE:

Update on PFAS (formerly known as PFCs) in Minnesota
Laboratory Map for Private Well Owners
Obituary

Continuing Education Calendar
New Contractor Certifications



Old, hand-dug well curbed with limestone blocks at Liberty Plaza apartments, St. Paul, Minnesota.

MDH metro district hydrologist, Mr. Patrick Sarafolean, visited the property and reported that the hole appeared to be an old hand-dug well. The well was inspected with a downhole well inspection camera. It was 24-inches in diameter, 36-feet deep, and was dry. The well was curbed with limestone blocks from top to bottom with no mortar between the pieces of limestone. No pumping or discharge equipment or disposal piping was found in the well. It appeared that the well had been covered with an old wooden lid that had been covered with soil and grass. The lid was rotten and collapsed into the well when the air compressor was towed over the top of it.

Mr. Sarafolean conducted research to determine the age and origin of the well and learned that the property was likely platted in the 1850s by Mr. Charles Mackubin, one of the earliest real estate developers in Minnesota, and Mr. William R. Marshall, who was the fifth Governor of Minnesota. Figure 1 shows a historical housing map of the neighborhood that was created in 1884. The well was located on Lot 23, Block 19. The map shows a house valued at \$300 on the property. The house, and likely

the well, were present in 1858, the year that Minnesota became a state. Local historian, Mr. Jim Sazevich, reported that the property was owned by Mr. Abraham S. Elfelt, who was a pioneer merchant and one of the first Jewish residents of St. Paul, Minnesota.

Mr. Sarafolean contacted Ms. Amanda Gronhovd, state archaeologist, at the Minnesota History Center to report the existence of this old well and to discuss any interest her office might have in documenting the well and trying to retrieve artifacts from the bottom of it. Ms. Gronhovd visited the site to view the well, and also reviewed the downhole video recording of the well. Unfortunately, lack of funding and the property owner's desire to have the well permanently sealed as soon as possible, to assure the safety of the residents, prevented any further exploration for historical artifacts in the well.

Global positioning coordinates were recorded for the well and the well was assigned Minnesota Unique Well Number 277895. The well was permanently sealed on April 27, 2017, by Minnesota licensed well contractor, Bergerson-Caswell Inc., from Maple Plain, Minnesota.

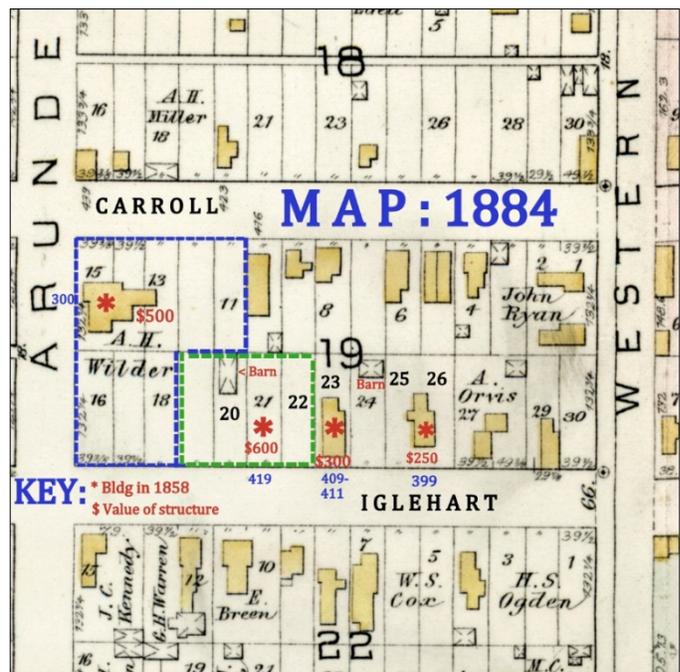


Figure 1 – City of St. Paul property map circa 1884. Old, hand-dug well discovered on Lot 23, Block 19.

Update on PFAS (Formerly Known as PFCs) in Minnesota

Background: Per- and Polyfluoroalkyl substances, also known as “PFAS,” (and previously known as “PFCs”) are a family of man-made chemicals that have gained worldwide attention as environmental contaminants because some are very soluble in water, are mobile in the environment, and are resistant to degradation. PFAS are organic chemicals with carbon chains of varying lengths that can be either fully or partially saturated with fluorine atoms and that have a carboxylic acid or sulfonate functional group attached to one end. PFAS have been found in many species of wildlife around the world including fish, bald eagles, and mink. Studies have revealed that it is likely that most people in the world have some level of PFAS in their blood, regardless of their age. People are exposed to PFAS through water, food, dust, or other consumer products. Some PFAS can accumulate and stay in the human body for many years. If exposure to PFAS is stopped, levels in the human body will decline over time.

PFAS were originally developed in the 1940s and were used around the world by many industries. 3M Company, began manufacturing PFAS in Minnesota in the 1950s. PFAS were used to make products that resist heat, oil, stains, grease, and water; and were used as coatings in many products including food packaging, nonstick cookware, and stain-resistant carpets and fabrics. PFAS were also used in firefighting foam, chrome plating, and for other industrial applications. 3M Company voluntarily stopped production of some of the most extensively used PFAS, namely Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS) in 2002; however, they are still produced internationally and may enter the United States in consumer products.

The Minnesota Department of Health (MDH) and the Minnesota Pollution Control Agency (MPCA) began investigating PFAS in Minnesota in 2002. MDH’s public health laboratory was one of the first laboratories in the country to develop methods to detect PFAS in water. The laboratory developed methods to detect PFAS associated with 3M Company wastes in the eastern Twin Cities metro area (East Metro), PFAS associated with firefighting foams, and PFAS in blood serum, garden produce, and other media. In 2002, laboratory detection levels for PFAS were higher than they are today, and risk assessment advice suggested that exposure to small amounts of PFAS were not a health concern. Lab methods have improved since then and we are now able to detect these chemicals down to the parts per trillion range in groundwater. Risk assessment has also improved and new studies suggest that long-term exposure to PFAS, at the parts per trillion level, might adversely affect some of the most vulnerable members of the human population, namely fetuses and infants.

Health Effects: While MDH believes that the immediate health risks for most people exposed to PFAS are low, the most current information indicates that fetuses and infants are more vulnerable. Long-term exposure to PFOA, PFOS, and Perfluorohexane Sulfonate (PFHxS) leads to a build-up of these chemicals in the human body. Fetuses and breastfed infants, born to women who have had long-term exposures to PFOA, PFOS, and/or PFHxS, can be exposed to elevated levels of PFAS during development.

Scientists are actively studying whether PFAS cause health problems in people. In some studies, higher levels of PFOA and PFOS in a person’s body were associated with higher cholesterol, changes to liver function, changes in thyroid hormone levels, and reduced immune response. More studies are needed to determine if PFAS caused these health outcomes, or if other factors were responsible.

Studies in animals have shown some health effects including changes in development, liver and thyroid function, and immune response; increased kidney weight and cellular changes, and increased tumors in certain organs. Research continues on PFAS and health effects such as birth outcomes, hormone balance, cholesterol levels, immune response, and carcinogenicity.

Health Guidance Levels for PFAS: Water that contains levels of PFAS above drinking water values should not be used for drinking or cooking, but is safe for bathing, showering, washing clothes, and cleaning. Currently, MDH has health-based guidance values for the following PFAS in drinking water:

PFAS Chemical	Drinking Water Guidance Value (parts per billion [ppb])
Perfluorobutane Sulfonate (PFBS)	2.0
Perfluorohexane Sulfonate (PFHxS)	0.047*
Perfluorooctane Sulfonate (PFOS)	0.015**
Perfluorobutanoic Acid (PFBA)	7.0
Perfluoropentanoic Acid (PFPeA)	Not Established
Perfluorohexanoic Acid (PFHxA)	Not Established
Perfluorooctanoic Acid (PFOA)	0.035

*New Health Based Value (HBV) established by MDH, and released on April 3, 2019.

**Revised Health Based Value (HBV) established by MDH, and released on April 3, 2019.
(Previous HBV for PFOS was 0.027 ppb.)

PFAS in the East Metro: From the 1950s to the 1970s, 3M Company disposed of PFAS wastes at four locations in the East Metro including the Oakdale and Woodbury dumpsites, the Washington County Landfill in Lake Elmo, and at the 3M manufacturing plant in Cottage Grove. PFAS were first detected in Minnesota groundwater in 2003 in the East Metro near the 3M manufacturing plant in Cottage Grove and near the Washington County Landfill in Lake Elmo. Since that time, MDH and MPCA have tested over 2,600 private and public wells and MDH has issued over 1,100 drinking water advisories. (A drinking water advisory consists of a letter issued by MDH, to a well owner, indicating that PFAS has been detected in the water above health advisory levels, and that the water is not safe for consumption.) Granular activated carbon (GAC) filters have been provided to the cities of Oakdale and Cottage Grove to treat water from affected municipal wells, and also to residents with affected private wells. Also, in Lake Elmo, approximately 200 private wells were permanently sealed and the homes were connected to the Lake Elmo municipal water system. In 2007, MDH’s Well Management Section established a Special Well and Boring Construction Area in parts of Lake Elmo and Oakdale in order to notify the public and well contractors of PFAS contamination in groundwater, to require plan review for the construction and sealing of wells in the area, and to require water testing for PFAS for new wells constructed in the area.

Investigations in the East Metro have identified an area of PFAS groundwater contamination covering over 150 square miles that has affected the drinking water supplies of over 140,000 Minnesotans. Communities in the East Metro area affected by PFAS include: Afton, Cottage Grove, Denmark Township, Grey Cloud Island Township, Lake Elmo, Lakeland, Maplewood, Newport, Oakdale, the southeast part of St. Paul, St. Paul Park, West Lakeland Township, Woodbury, and northern Dakota

County adjacent to the Mississippi River. MDH and MPCA will continue to test wells that have already been sampled to track changes in water quality over time, and will test additional wells in the affected areas in 2019. East Metro residents who live in a “priority sampling area,” who are interested in having their well water tested for PFAS, can get on a waiting list by filling out a well sampling request form at:

Perfluoroalkyl Substances (PFAS)

(<https://www.health.state.mn.us/communities/environment/hazardous/topics/pfcs.html>).

Remedies for East Metro Residents: Well owners in the East Metro area who receive a drinking water advisory letter from MDH are eligible to receive bottled water until either a whole house, granular activated carbon (GAC) filter is installed to remove PFAS from their drinking water, or the home is connected to a municipal water system (where available.) All bottled water, GAC filters, and filter installation and maintenance costs are paid by the state of Minnesota as a result of the 2007 Consent Decree between the State of Minnesota and 3M Company. MPCA oversees the bottled water delivery and GAC filter installation and maintenance. MPCA also reimburses most, if not all, costs for connection to a municipal water system. Persons with PFAS below drinking water guidance, who have not been issued a drinking water advisory, can choose to minimize their exposure to PFAS by purchasing bottled water, connecting to a safe source of water if available, or by installing their own water treatment filters to remove PFAS. Granular activated carbon (GAC) and reverse osmosis (RO) filters are effective at removing PFAS from drinking water.

Settlement of Lawsuit with 3M Company: In 2010, the Minnesota Attorney General sued 3M Company, alleging that the company’s production of chemicals known at the time as PFCs, had damaged drinking water and natural resources in the southeast Twin Cities metro area. On February 20, 2018, the State of Minnesota settled the lawsuit against 3M Company in return for a grant of \$850 million dollars. After legal and other expenses were paid, approximately \$720 million dollars were made available for drinking water and natural resource projects in the East Metro. The grant will be used for projects to provide a clean, sustainable water supply to the East Metro area, and for natural resource projects to enhance aquatic resources, wildlife habitat, and outdoor recreational opportunities in the affected area. Any remaining funds can be used for statewide environmental projects.

Other PFAS Investigations in Minnesota: PFAS has been detected in groundwater near firefighting training areas in Bemidji and Duluth, Minnesota. In Bemidji, the firefighting training site is located at the Bemidji airport. PFAS has been detected in several Bemidji municipal wells that are located on the airport property, down gradient of the firefighting training area. As a result, the city is planning replacement of at least one city well. In Duluth, the firefighting training area is located at the Duluth airport and Air National Guard Base. PFAS has been detected in surface water near the airport and a small number of private wells close to the airport. Drinking water advisories have been issued for two domestic wells near the airport.

Since 2008, MDH has completed three biomonitoring projects that tested the blood of over 350 East Metro residents for PFAS, as directed by the Minnesota Legislature. These projects found that PFAS levels were higher in longer-term East Metro residents than the average U.S. population, but that levels have decreased significantly over time. Results showed that efforts to reduce drinking water exposure to PFAS were successful in reducing PFAS blood levels in the population.

PFAS, namely PFOS, has also been detected in fish in some lakes in Minnesota and has led to the establishment and posting of fish consumption advisories. MDH's fish consumption guidelines help people limit exposure to contaminants like Polychlorinated Biphenyls (PCBs), mercury, and PFOS found in fish. Information on fish contamination in Minnesota lakes and waters, and fish consumption advisories can be found on the MDH and the Minnesota Department of Natural Resources websites at:

- [Fish Consumption Guidance](https://www.health.state.mn.us/communities/environment/fish/) (https://www.health.state.mn.us/communities/environment/fish/).
- [LakeFinder](https://www.dnr.state.mn.us/lakefind/index.html) (https://www.dnr.state.mn.us/lakefind/index.html).

In 2006 and 2007, MPCA collected samples from wastewater treatment plants and permitted landfills in Minnesota and found low levels of PFAS in effluent from waste water treatment plants and in groundwater, leachate, landfill gas, and gas condensate at several landfill sites in Minnesota.

Lastly, in 2010, MDH conducted a study on PFAS in garden produce and found primarily Perfluorobutanoic Acid (PFBA) in vegetables, at low levels, below health concern.

Federal Regulations: Currently, there are no enforceable federal standards for PFAS in drinking water. The Environmental Protection Agency (EPA) has issued "Lifetime Health Advisories for PFOA and PFOS." PFAS are not considered to be "hazardous waste" according to current federal standards; however, the EPA has initiated the process to classify PFOA and PFOS as hazardous waste.

More Information on PFAS

- [Perfluoroalkyl Substances \(PFAS\)](https://www.health.state.mn.us/communities/environment/hazardous/topics/pfcs.html) (https://www.health.state.mn.us/communities/environment/hazardous/topics/pfcs.html).
- [History of Perfluoroalkyl Substances \(PFAS\) in Minnesota](https://www.health.state.mn.us/communities/environment/hazardous/topics/history.html) (https://www.health.state.mn.us/communities/environment/hazardous/topics/history.html).
- [Perfluorochemicals \(PFCs\)](https://www.pca.state.mn.us/waste/perfluorochemicals-pfcs) (https://www.pca.state.mn.us/waste/perfluorochemicals-pfcs).
- [EPA's Per- and Polyfluoroalkyl Substances \(PFAS\)](https://www.epa.gov/pfas) (https://www.epa.gov/pfas).

Laboratory Map for Private Well Owners

We have recently published a map intended to help private well owners, well contractors, and others quickly identify laboratories that accept private well water samples for analysis. The map, showing the location of laboratories in Minnesota, can be found at: [Lab Map](https://www.health.state.mn.us/communities/environment/water/docs/wells/waterquality/labmap.pdf) (https://www.health.state.mn.us/communities/environment/water/docs/wells/waterquality/labmap.pdf).

Obituary

Todd Allen Kujath, 53, of Preston, Minnesota, passed away August 26, 2018.

Todd was a co-owner of Richard's Pump Service in Fountain, Minnesota. He was a retired member of the Fountain Volunteer Fire Department for 20 years, where he had served as the Assistant Fire Chief for several years. He was a past Cub Scout Leader of Lanesboro Cub Scout Troop 49.

Obituary for [Todd Allen Kujath](https://www.postbulletin.com/tributes/obituaries/todd-allen-kujath---preston/article_d8a030f5-e0df-5854-aaea-1906fe74884a.html) (https://www.postbulletin.com/tributes/obituaries/todd-allen-kujath---preston/article_d8a030f5-e0df-5854-aaea-1906fe74884a.html).

CONTINUING EDUCATION CALENDAR

Minnesota Department of Health Well Management Section's, [Continuing Education Programs](https://www.health.state.mn.us/communities/environment/water/wells/lwcinfo/training.html) (<https://www.health.state.mn.us/communities/environment/water/wells/lwcinfo/training.html>).

This calendar lists the upcoming continuing education courses that have been approved for renewal of certification for representatives of Minnesota licensed well and boring contractors. The calendar also lists the number of credits available for each course. The calendar is updated monthly and, if you subscribe, you will be notified by email when this page changes (new classes added, changes to existing classes).

For additional information about any of these training opportunities, call the contact person listed for the program of interest. For general information about continuing education, more current Continuing Education Unit (CEU) listings, or to request approval for other continuing education activities not listed, contact Norm Mofjeld at norman.mofjeld@state.mn.us or 651-201-4593.

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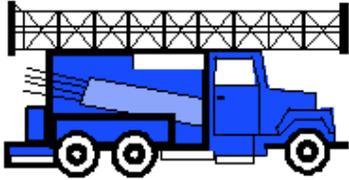
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**MINNESOTA DEPARTMENT OF HEALTH
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New Contractor Certifications

Well Contractor

Phillip Doffing
DC Well Drilling, LLC
Welch, Minnesota

Luke Geib
Geib Well Co., Inc.
Arlington, Minnesota

Environmental Well Contractor

Matthew Dailey
Siouxland Certified Testing Services
d.b.a. Certified Testing Services, Inc.
Sioux City, Iowa

Anthony Giles
Giles Engineering Associates, Inc.
Waukesha, Wisconsin

Explorer Responsible Individual

Brad Anderson
Hibbing Taconite Co.
Hibbing, Minnesota

Elizabeth Roepke
Anglogold Ashanti Minnesota
Denver, Colorado

Erick Thiesse
Northern Wells and Service
Brainerd, Minnesota

Pump, Pitless, and Screen Contractor

Darin Cahoy
Cahoy Pump Service, Inc.
Sumner, Iowa

Shon Harold Jensen
G & S Excavating, LLC
Nisswa, Minnesota

Timothy Johnson
Timmy's Water Well Service, LLC
New London, Minnesota

Nick Stokes
Madison Pump Service
Duluth, Minnesota